IN THE CLAIMS:

1. (previously presented) Device for variable actuation of gas exchange valves of internal combustion engines with several cylinders, in which (one or) more cams (2) of a camshaft (1) mounted in a housing rotate as a function of the engine speed, with a connecting link (4), which can be actuated by this or these cam(s) (2) through a first curved link and with a driven element (11) which transfers the motion to the gas exchange valve (13) and which is connected with the connecting link (4) directly or through other connecting links, and, between one of the connecting links (4) and the driven element (11), with at least one other curved link which has a section (5a) in which no lifting motion for the gas exchange valve (13) is transferred through the driven element (11) and has another section (5b) in which a lifting motion for the gas exchange valve (13) is transferred through the driven element (11), and with the capability of displacing at least one of the transmission elements along a displacement path (8, 35) and, in so doing, modifying the course of the lifting curve of the gas exchange valves, **characterized in** the gas exchange valves of one cylinder in a displacement unit (15, 34) are displaced together with and independently of the displacement units of the other cylinder, each displacement unit (15, 34) being assigned separate actuators to operate it, that rotational angle sensors (42, 43) are provided to capture rotational angle signals of the crankshaft and the camshaft or another shaft running at half the crankshaft speed, from which it is possible to derive the common resting phase of all valves of a cylinder to be adjusted in common, and that a control unit (44) is present which causes the displacement of each displacement unit (15, 34) essentially during this common resting phase.

2. (previously presented) Device for variable actuation of gas exchange valves of internal combustion engines with several cylinders, in which (one or) more cams (2) of a camshaft (1) mounted in a housing rotate as a function of the engine speed, with a connecting link (4), which can be actuated by this or these cam(s) (2) through a first curved link and with a driven element (11) which transfers the motion to the gas

exchange valve (13) and which is connected with the connecting link (4) directly or through other connecting links, and, between one of the connecting links (4) and the driven element (11), with at least one other curved link which has a section (5a) in which no lifting motion for the gas exchange valve (13) is transferred through the driven element (11) and which has another section (5b) in which a lifting motion for the gas exchange valve (13) is transferred through the driven element (11), and with the capability of displacing at least one of the transmission elements along a displacement path (8, 35) and, in so doing, modifying the course of the lifting curve of the gas exchange valves, **characterized in** that

- at least one displacement unit (15, 34) is present which carries out the displacement to affect the lifting motion of at least one gas exchange valve (13) independently of the displacement of other displacement units to affect lifting motion of other gas exchange valves (13);
- a common adjusting shaft (45) is provided which can, for a number of gas exchange valves (13), directly or indirectly adjust, by means of at least one cam disk (46 or 47) per displacement unit, the respective required position of the transmission elements, which can be displaced along the displacement path (8, 35), on this displacement path (8, 35), and these transmission elements can be supported essentially in the direction of displacement;
- the cam disk (47) for at least one displacement unit has a section (49) made as a rest which causes no change in the position of the transmission elements guided on the displacement path (8, 35) when the adjusting shaft (45) is rotated;
- and the cam disk (46) of at least one other displacement unit (15, 34) has a corresponding section without a rest which does cause a change in the position of the transmission elements guided on the displacement path (8, 35) when the adjusting shaft (45) is rotated.

3. (previously presented) Device of claim 2, **characterized in** that the section without rest

of the cam disk (46) has a sector R in which the contour curve (adjusting cam curve) continuously leads to a smaller distance to the center of rotation (48) of the adjusting shaft (45).

4. (previously presented) Device of claim 3, **characterized in** that the contour of cam disk (46) has a sector N arranged adjacent to sector R, in which the contour curve (adjusting cam curve) is such that the valves of the cylinder which are actuated when this sector N becomes active remain constantly closed, while the contour of cam disk (47) has a corresponding sector N in which the contour curve is such that the valves of the cylinder which are actuated when this corresponding sector N becomes active still execute a lift.

5. (currently amended) Device of claims 2 ~~through 4~~, **characterized in** that adjusting shaft (45) has several identical cam disks (46) and several identical cam disks (47) arranged on it, and each of the cam disks (46) and (47) are oriented so that they have the same angular position to one another, i.e., they not rotated with respect to one another.

6. (currently amended) Device of claims 1 ~~through 5~~, **characterized in** that two identical cams and two connecting links with identical radial cams are used for the two valves of a cylinder.

7. (currently amended) Device of claims 1 ~~through 5~~, **characterized in** that two different cams and two connecting links with different radial cams are used for the two valves of a cylinder.

8. (currently amended) Device of claims 1 ~~through 5~~, **characterized in** that two identical cams and two connecting links with different radial cams are used for the two valves of a cylinder.

9. (currently amended) Device of claims 1 ~~through 5~~, **characterized in** that two different cams and two connecting links with identical radial cams are used for the two valves of a cylinder.

10. (currently amended) Device of claims 1 ~~through 5~~, **characterized in** that a common connecting link is used with two identical radial cams for the intake or exhaust valves of a cylinder.

11. (currently amended) Device of claims 1 ~~through 5,~~ **characterized in** that a common connecting link is used with two different radial cams for the valves.

12. (currently amended) Device of one or more of claims 1 ~~through 11~~, **characterized in** that at least one valve is adjusted all the way, so that it is closed constantly.

13. (currently amended) Device of one or more of claims 1 ~~through 12,~~ **characterized in** that all intake or exhaust valves of a cylinder are combined in a displacement unit (15, 34).

14. (currently amended) Process ~~for~~ operating an internal combustion engine with several cylinders using one or more devices of one or more of claims 1 ~~through 13,~~ **characterized in** that after a desired load state for the entire engine is reached

a) angular position signals of the crankshaft are picked up with a first rotational angle sensor (42) on the flywheel and evaluated by an engine management system (44) in order to detect rotational irregularities of the crankshaft and/or torque peaks;

b) these are assigned to the individual cylinders with the help of a second rotational angle sensor (43) arranged on the camshaft or on another shaft running at half the crankshaft speed; and

c) this information is used to produce signals which go to drives

for the individual displacement units to even out the torque peaks and/or the crankshaft speed, by correcting the valve strokes of the cylinders with the smaller torques upward and correcting those of the cylinders with the larger torques downward.

15. (currently amended) Process for operating an internal combustion engine with several cylinders using one or more devices of one or more of claims 1 ~~through 13,~~ **characterized in** that

a) each cylinder has assigned to it a separate device and an actuator to operate the device;

b) the phase position of the rest phases of the individual valves operated by an actuator is determined; and

c) the adjustment movements of the respective devices take place essentially during the common rest phases of the valves operated by the respective displacement unit.

16. (previously presented) Process of claim 15, **characterized in** that the phase position of the rest phases of the individual valves is determined by an engine management system (44) from the signal of a rotational angle sensor (43) arranged on the camshaft.